

PROCEEDINGS
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A FOSSIL TSETSE FLY AND OTHER DIPTERA FROM
FLORISSANT, COLORADO.

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The Diptera described below were collected recently by Mr. Geo. Wilson, and transmitted to me by Mr. F. H. Ward. They have been placed in the U. S. National Museum. The tsetse flies (*Glossina*) at present belong to the Ethiopian fauna.

Glossina armatipes new species (Glossinidæ).

A specimen in lateral profile, the head and anterior part of thorax missing.

Male.—Length of wing about 7.5 mm., of abdomen about 6.5 mm.; hind femur 4 mm., hind tibia 3 mm. Thorax black, sides not hairy; the position of the bristles can not be made out, the pteropleural and sternopleural bristles usually so conspicuous in *Glossina* can not be seen. Abdomen in lateral view appearing rather slender, the apex curved downward and forward, with a pair of clavate chitinous rods obscurely indicated; hair of abdomen fine and thin, as usual in the genus; base of abdomen broadly dark, beyond this four or five dark brown bands, the first three very distinct, and separated by colorless intervals as wide as themselves. Middle (?) tarsi with fine hairs and coarse black bristles, as usual in the genus. Hind femora with a row of long black bristles on lower side, beginning about 1440 μ from end, these are eight in all, directed downward, the last three short, but the fifth longest (about 560 μ), extending across the whole width of the adjacent flexed tibia. Tibia with fine scattered hairs and a row of strong black bristles on outer face, but I can not see any regular row of short spines such as occurs in modern *Glossina*; at the end of the tibia are two large curved spines, one larger and much stouter than the other. Hind basitarsus very minutely hairy, the anterior side near the base with two stout spines, which are very finely longitudinally striated (the same occur in the living *G. fusca* Walker); tarsi long; claws slender and simple. Wings perfectly clear,

with very pale veins; venation normal for *Glossina*, except that the outer margin of the discal cell is strongly curved above, becoming more or less S-like, so that the end of the cell is narrowed; this is an exaggeration of the condition found in the fossil *G. osborni* Ckll. and the living *G. fusca* Walker.

Miocene shales of Florissant (Geo. Wilson).

I at first thought this species should represent a distinct genus, on account of the shape of the end of the discal cell and the strong armature of the hind legs. I found, however, that the living *G. fusca* possessed all these characters in a less exaggerated form, and that it would be impossible to define a genus satisfactorily. It then appeared possible that the specimen might be referred to the fossil *G. osborni*, but in that species the outer side of the discal cell, if the bulge at the upper end is not considered, is nearly at right angles to the upper side, whereas in *G. armatipes* the outer side, ignoring the bulge, is oblique, at an angle of about 45° with the upper side. *G. osborni* is a typical *Glossina*, whereas *G. armatipes* is a distinctly aberrant species. The fossil species of *Glossina* known from Florissant may be separated thus:

Very large, wings 16 mm. long; outer side of discal cell hardly curved, and anterior basal cell strongly claviform at end . *oligocena* (Scudder).

Wings 10.9 mm. long; outer side of discal cell more oblique, and anterior basal cell hardly claviform at end *veterna* Ckll.

Wings less than 8 mm. long

osborni Ckll. and *armatipes* Ckll. (differing as indicated above).

Dolichomyia tertiaria new species (Bombyliidæ).

Length 10 mm.; thorax 2.25 mm. long; wings 5 mm. long, perfectly clear; hind legs long and slender, femora 3.5 mm., tibia 3 mm.; abdomen very long and slender, not noticeably enlarged apically, its depth a little over 1 mm. Head, thorax and legs dark, abdomen dark with broadly hyaline sutures. Venation exactly like *Dolichomyia*, as figured by Williston, but some of the apical nervures obliterated or almost so, being very pale and thin. The following measurements are in microns: praefurca about 160, first basal cell on first submarginal 1090, first basal on discal 850, first posterior on discal 560, second basal on discal 144, second basal on third posterior 240.

Miocene shales of Florissant (Geo. Wilson).

The discovery of a *Dolichomyia* in the Miocene is surprising; the genus is to-day represented by scattered and rare species in South and North America (Colorado).

Oxycera (?) contusa new species (Stratiomyidæ).

Female.—Length 6.3 mm.; head, thorax and abdomen dark, the abdomen without markings; thorax 2.6 mm. wide; abdomen very broad, circular, the breadth and length 3.3 mm.; eyes naked, .5 mm. apart on vertex; wings 5.6 mm. long, perfectly clear, the veins very faint. The venation appears to be normal for *Oxycera*, but most of it is so faint that

it requires a strong light and close study to make it out. The side of the fifth posterior cell on the second basal appears to be less than that on the discal, which is not usual in *Oxycera*; the vein separating the submarginal cells is so extremely faint that I thought it was absent, as in *O. formosa* Meigen; the end of the stigma is about on a level with end of discal cell; the longitudinal veins from the discal cell are straight or practically so. The following measurements in microns were taken with difficulty, but are probably correct: Depth of submarginal cell at level of end of stigma 272, discal cell on first posterior about 720, discal on second posterior 128, discal on third posterior 256 or perhaps more, discal on fourth posterior 320, discal on fifth posterior 384, second basal on fifth posterior 288; end of anal to wing margin 208.

Miocene shales at Florissant (Geo. Wilson).

I am unable to demonstrate the scutellar spines, and they were possibly absent, so it is not positive that the fly belongs to *Oxycera*. Of the genera of Clitellariinæ cited by Williston without scutellar spines, this can not be *Nemotelus* or *Akronia*, as the face is not conically produced; the size and appearance are quite unlike *Hermetia* or *Chrysochlora*; the bare eyes exclude *Pelagomyia*; leaving only the South American genus *Cacosis* of Walker, which is distinguished by antennal peculiarities which can not be made out in the fossil. The fossil shows one antenna appressed to the head, and it is oval with a stout terminal arista, as in *Oxycera morrisii* Curtis, figured by Verrall. The fossil is therefore either an *Oxycera* or very closely related to that genus.

